CLAIMS

1. A method of manufacture of an automobile structure comprising the steps of:

forming in a die a plurality of castings each having at least one socket;

forming a plurality of metallic rails; and

fixing the metallic rails in the sockets of the castings in order to construct the automobile structure.

2. A method as claimed in claim 1 wherein:

four of the castings are formed which in the finished structure are located one each at the four corners of a generally rectangular cabin of the automobile; and

two of the metallic rails are side rails which extend longitudinally parallel to each other on opposite sides of the cabin each between a different pair of castings, each side rail being fixed at each end in socket of a casting.

3. A method as claimed in claim 1 or claim 2 which additionally comprises:

forming at least one of the castings initially with features capable of defining a plurality of different sizes of sockets;

selecting a size of cross-section of a metallic rail; and

machining the said at least one casting to provide the casting with a socket of a size appropriate for the selected metallic rail.

4. A method as claimed in any one of the preceding claims wherein each of the plurality of metallic rails is formed from an extrusion.

5. A method as claimed in any one of the preceding claims comprising fixing the metallic rails in the sockets by bonding with adhesive.

6. A method as claimed in claim 5 wherein the metallic rails are initially secured in place in the sockets by mechanical fasteners and then adhesive is injected in gaps left between the rails and the sockets.

7. A method as claimed in any one of the preceding claims, wherein each socket formed in each casting is open in two perpendicular directions.

8. A method as claimed in claim 7 wherein a closing plate is used to complete each socket.

9. A method as claimed in claim 5, 6 or 7, comprising:

forming in at least one of the castings a socket having a pair of parallel spaced apart planar surfaces extending between side walls common to both;

forming a rectangular cross-section hollow metal rail;

cutting away three of the four walls from an end section of the hollow metal aril to leave exposed a planar surface which was originally an interior surface of the hollow metal rail; and

adhering the exposed planar surface of the metal rail to one of the parallel spaced apart planar surfaces of the casting and adhering to the other planar surface of the casting a part of an exterior surface of the hollow rail which is parallel to and spaced apart from the exposed planar surface of the hollow rail.

10. A method as claimed in any one of claims 1 to 3 wherein each metallic rail is formed from steel by pressing and/or folding.

11. A method as claimed in claim 8 comprising fixing the metallic rails in the sockets by welding.

12. A method as claimed in claim 10 or claim 11 wherein each socket formed in each casting is open in two perpendicular directions.

13. A method as claimed in claim 12 wherein a closing plate is welded to each casting to complete each socket.

14. A method as claimed in claim 11 or claim 12, comprising:

forming in at least one of the castings a socket having a pair of parallel spaced apart planar surfaces extending between side walls common to both;

forming a rectangular cross-section hollow metal rail;

cutting away three of the four walls from an end section of the hollow metal rail to leave exposed a planar surface which was originally an interior surface of the hollow metal rail; and

welding the exposed planar surface of the metal rail to one of the parallel spaced apart planar surfaces of the casting and welding to the other planar surface of the casting a part of an exterior surface of the hollow rail which is parallel to and spaced apart from the exposed planar surface of the hollow rail.

15. A method as claimed in any one of claims 1 to 8

or 10 to 13 wherein at least one metallic rail is formed as an open-section rail and in the method a cover plate is fixed to the open-section metallic rail to close the section.

16. A method as claimed in claim 15 wherein the open-section rail is fixed additionally to a floor panel and the cover plate is fixed to both the floor panel and the metallic rail in order to form a closed-section structure extending along a side of the vehicle.

17. An automobile comprising a chassis formed by the method of any one of the preceding claims, the chassis providing the primary structural rigidity of the vehicle and the automobile having exterior body panels overlaying the chassis.

18. An automobile as claimed in claim 17 which has a cabin with a diamond shaped floor pan and seats for a driver and three passengers; a driver's seat located forward of the other seats and centrally widthwise of the vehicle; two passengers' seats located rearwardly of the driver's seat and each spaced transversely outwardly from the driver's seat; and a fourth passenger seat located rearwardly of the other three seats and directly behind the driver's seat.

19. A method of manufacture of a plurality of different automobile structures comprising:

forming in a die a plurality of identical castings each having at least one socket;

forming a first length of metal of a first chosen cross-section;

cutting the first length of metal into a first plurality of side rails for an automobile each with the same first side rail length;

cutting the first length of metal into a second plurality of side rails for an automobile each with the same second side rail length different to the first side rail length;

fixing the metallic rails of the first plurality into sockets of a first plurality of the castings to form a first type of automobile structure; and

fixing the metallic rails of the second plurality into sockets of a second plurality of castings to form a second type of automobile structure.

20. A method as claimed in claim 19 wherein the castings are each formed with features defining a first size of socket and with features capable of defining a second different size of socket, and the method additionally comprises:

forming a second length of metal of a second chosen cross-section;

cutting the second length of metal into a third plurality of side rails for an automobile each with the same third side rail length;

cutting the second length of metal into a fourth plurality of side rails for an automobile each with the same fourth side rail length different to the third side rail length;

machining after casting some of the identical castings to provide a first plurality of the castings with sockets of the second size, while leaving others of the identical castings unmachined to provide a second plurality of castings with sockets of the first size; and

selecting between the plurality of castings and the plurality of side rails and fixing side rails into the sockets of the castings where the sizes of the sockets of the castings match the cross-sections of the side rails in order to form a plurality of

different automobile structures from a common set of initial castings and metallic railings.